



Figure 1. Flowchart of declared system

Figure 2

P_1	P_2	P_3
P_8	P	P_4
P_7	P_6	P_5

Figure 3

dir order	0	1	2	3	4	5	6
0	(-3,0)	(-2,0)	(-1,0)	(0,0)	(1,0)	(2,0)	(3,0)
1	(-3,-1)	(-2,0)	(-1,0)	(0,0)	(1,0)	(2,0)	(3,1)
2	(-3,-1)	(-2,-1)	(-1,0)	(0,0)	(1,0)	(2,1)	(3,1)
3	(-3,-2)	(-2,-1)	(-1,-1)	(0,0)	(1,1)	(2,1)	(3,2)
4	(-3,-3)	(-2,-2)	(-1,-1)	(0,0)	(1,1)	(2,2)	(3,3)
5	(-2,-3)	(-1,-2)	(-1,-1)	(0,0)	(1,1)	(1,2)	(2,3)
6	(-1,-3)	(-1,-2)	(0,-1)	(0,0)	(0,1)	(1,2)	(1,3)
7	(-1,-3)	(0,-2)	(0,-1)	(0,0)	(0,1)	(0,2)	(1,3)
8	(0,-3)	(0,-2)	(0,-1)	(0,0)	(0,1)	(0,2)	(0,3)
9	(1,-3)	(0,-2)	(0,-1)	(0,0)	(0,1)	(0,2)	(-1,3)
10	(1,-3)	(1,-2)	(0,-1)	(0,0)	(0,1)	(-1,2)	(-1,3)
11	(2,-3)	(1,-2)	(1,-1)	(0,0)	(-1,1)	(-1,2)	(-2,3)
12	(3,-2)	(2,-1)	(1,-1)	(0,0)	(-1,1)	(-2,1)	(-3,2)
13	(3,-1)	(2,-1)	(1,0)	(0,0)	(-1,0)	(-2,1)	(-3,1)
14	(3,-1)	(2,0)	(1,0)	(0,0)	(-1,0)	(-2,0)	(-3,1)
15	(3,0)	(2,0)	(1,0)	(0,0)	(-1,0)	(-2,0)	(-3,0)

Figure 4

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	1	1	1	0	1	1	0	0	1	1	1	1	0	1	0	0
1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0	0
2	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1
3	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
6	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1
7	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1
8	1	0	1	0	1	1	1	0	1	1	1	1	1	1	1	0
9	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0
A	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
B	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
C	0	0	1	0	1	1	1	0	1	1	1	1	1	1	1	0
D	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	0
E	0	0	1	0	1	1	1	0	1	1	1	1	1	1	1	1
F	0	0	1	0	1	1	1	0	1	1	1	1	1	1	1	1

Figure 4 is a truth table for a 16-bit input and 16-bit output. The input is a 16-bit vector (0-F) and the output is a 16-bit vector (0-F). The output is the input with the 10th bit (index 9) flipped. For example, if the input is 0, the output is 1. If the input is 1, the output is 0. If the input is 2, the output is 3. If the input is 3, the output is 2. If the input is 4, the output is 5. If the input is 5, the output is 4. If the input is 6, the output is 7. If the input is 7, the output is 6. If the input is 8, the output is 9. If the input is 9, the output is 8. If the input is A, the output is B. If the input is B, the output is A. If the input is C, the output is D. If the input is D, the output is C. If the input is E, the output is F. If the input is F, the output is E.

Figure 5

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	1	1	1	0	1	1	0	0	1	1	0	0	0	1	0	0
1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	0	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	0	1	1	1	1	1	1	1	0	0	1	1	0	0	0	0
8	1	0	0	0	1	1	0	0	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
B	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
C	0	0	0	0	1	1	0	0	1	1	1	1	1	1	1	1
D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
E	0	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1
F	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1